

IN THE CLAIMS:

1. (Previously Cancelled) A scan diagnosis system for testing and diagnosing a device-under-test including:

a semiconductor tester adapted for coupling to the device-under-test and operative to generate pattern signals in the ATE domain to test the device-under-test and produce test output data in the ATE domain;

an ATPG diagnosis tool operative to generate ATPG pattern data and ATPG results data in the ATPG domain; and

a translator to effect automatic correlation of data between the ATPG domain and the ATE domain to allow data communication between the tester and the tool.

2. (Previously Cancelled) A scan diagnosis system according to claim 1 wherein the translator includes:

a pattern translator to convert ATPG pattern data into ATE pattern data;

a result translator to convert ATE output data into ATPG tool input data; and

a mapping generator for correlating the pattern data and the results data between the ATPG and the ATE domains.

3. (Previously Cancelled) A scan diagnosis system according to claim 1 and further including:

a graphical user interface generator for receiving failure scan chain data identifying failed scan chains from the test and diagnosis engine and generating

graphical representations of the failed scan chains; and

a display device coupled to receive the graphical representations from the graphical user interface, the display device operative to display the graphical representations of the failed scan chains.

4. (Previously Cancelled) A scan diagnosis system including:  
a test and diagnosis engine including a semiconductor tester and a scan  
diagnosis tool;

5 a graphical user interface generator for receiving failure scan chain data  
identifying failed scan chains from the test and diagnosis engine and generating  
graphical representations of the failed scan chains; and  
a display device coupled to receive the graphical representations from  
the graphical user interface, the display device operative to display the graphical  
representations of the failed scan chains.

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5. (Previously Cancelled) A scan diagnosis system according to claim 4  
wherein the semiconductor tester is operative to generate pattern signals in the ATE  
domain to test a device-under-test and produce test output data in the ATE domain,  
and the diagnosis tool is operative to generate ATPG pattern data and ATPG results  
5 data in the ATPG domain, the scan diagnosis system further including:

a translator to effect automatic correlation of data between the ATPG  
domain and the ATE domain to allow data communication between the tester and the  
tool.

6. (Previously Cancelled) A scan diagnosis system according to claim 5  
wherein the translator includes:

a pattern translator to convert ATPG pattern data into ATE pattern  
data;  
5 a result translator to convert ATE output data into ATPG tool input  
data; and  
a mapping generator for correlating the pattern data and the results data  
between the ATPG and the ATE domains.

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7. (Previously Cancelled) A scan diagnosis system including:  
semiconductor tester means for generating pattern signals in an ATE  
domain to test a device-under-test and producing test output data in the ATE domain;  
diagnosis tool means for generating ATPG pattern data and ATPG  
5 results data in an ATPG domain; and  
means for automatically correlating data between the ATPG domain  
and the ATE domain to allow data communication between the tester means and the  
tool means.

8. (Previously Cancelled) A scan diagnosis system according to claim 7  
wherein the test output data includes failed scan chain data, the scan diagnosis system  
further including:  
means for graphically displaying the failed scan chain data.

9. (Previously Cancelled) A computer-readable medium having stored  
thereon sequences of instructions which, when executed, cause one or more electronic  
systems to:  
test a device-under-test with test pattern data in a scan format;  
5 capture scan failure data associated with failed scan chains from the  
device-under-test;  
display a portion of the scan chains including the captured failure data;  
and  
diagnose the scan failure data with a diagnosis tool.

10. (Previously Cancelled) A method comprising:  
testing a device-under-test with test pattern data in a scan format;  
capturing scan failure data associated with failed scan chains from the  
device-under-test;  
5 displaying a portion of the scan chains including the captured failure  
data; and  
diagnosing the scan failure data with a diagnosis tool to produce  
diagnosis results data.

11. (Previously Cancelled) A method according to claim 10 wherein the step of testing includes the step:  
directly communicating with the diagnosis tool.

12. (Previously Cancelled) A method according to claim 10 wherein the step of testing includes the step:  
generating ATPG pattern data in the ATPG domain with the diagnosis tool; and  
5 automatically translating the ATPG pattern data into ATE test pattern data.

13. (Previously Cancelled) A method according to claim 10 wherein the step of capturing includes the step:  
accumulating multiple sets of scan failure data.

14. (Previously Cancelled) A method according to claim 10 wherein the step of displaying includes:  
displaying textual/tabular scan fail data.

15. (Previously Cancelled) A method according to claim 10 wherein the step of displaying includes:  
displaying graphical scan fail data.

16. (Previously Cancelled) A method according to claim 10 and further including the step:  
displaying the diagnosis results data.

17. (Previously Cancelled) A method according to claim 16 wherein the step of displaying includes:  
displaying textual/tabular diagnosis results data.

18. (Previously Cancelled) A method according to claim 16 wherein the step of displaying includes:  
displaying graphical diagnosis results data.

19. (Previously Cancelled) A method according to claim 13 wherein the step of diagnosing includes the step:

automatically invoking the diagnosis tool on selected scan failure data sets.

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20. (Previously Cancelled) A method according to claim 13 wherein the step of diagnosing includes the step:

generating ATPG pattern data in the ATPG domain with the diagnosis tool; and

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automatically translating the ATE output test data into ATPG data; and generating ATPG input diagnosis tool data.

21. (Previously Cancelled) A method according to claim 13 wherein the step of diagnosing includes the step:

accumulating multiple sets of diagnosis results data.

22. (Previously Cancelled) A computer-readable medium having stored thereon sequences of instructions which, when executed, cause one or more electronic systems to:

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generate pattern signals in the ATE domain with a semiconductor tester to test a device-under-test and produce test output data in the ATE domain;

generate ATPG pattern data and ATPG results data in the ATPG domain with an ATPG diagnosis tool; and

automatically correlate data between the ATPG domain and the ATE domain with a translator to allow data communication between the tester and the tool.

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23. (Previously Cancelled) A method comprising:

generating pattern signals in the ATE domain with a semiconductor tester to test a device-under-test and produce test output data in the ATE domain;

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generating ATPG pattern data and ATPG results data in the ATPG domain with an ATPG diagnosis tool; and

automatically correlating data between the ATPG domain and the ATE domain with a translator to allow data communication between the tester and the tool.

24. (Currently Amended and Previously Added) A DFT result diagnosis system including:

- an ATE data source for providing test data in the ATE domain;
- an ATPG tool operative to generate ATPG pattern data and ATPG results data in the ATPG domain;
- at least one translation module to automatically convert data between multiple domains;
- at least one function module to automatically summarize data from one or more devices or tests in one or more domains;
- a graphical user interface generator for receiving data identifying failed scan chains and scan cells from the ATE data source and ~~ATPG/scan-fail translator~~ATPG tool and generating graphical representations of the failed scan chains and cells; and
- a display device coupled to receive the graphical representations from the graphical user interface, the display device operative to display the graphical representations of the failed scan chains.

25. (Previously Added) A DFT result diagnosis system according to claim 24 wherein:

- the ATE data source comprises a semiconductor tester.

26. (Previously Added) A DFT result diagnosis system according to claim 24 wherein:

- the ATE data source comprises a data repository.

27. (Previously Added) A DFT result diagnosis system according to claim 24 wherein the at least one translation module includes:

- a pattern translator to convert ATPG pattern data into ATE pattern data;
- a result translator to convert ATE output data into ATPG/diagnosis tool input data; and
- a mapping generator for correlating the pattern data and the results data between the ATPG/scan and the ATE domains.

28. (Cancelled and Previously Added) A DFT result diagnosis system according to claim 24 and further including:

a graphical user interface generator for receiving data identifying failed scan chains and scan cells from the ATE data source and ATPG/scan fail translator

5 and generating graphical representations of the failed scan chains and cells; and

a display device coupled to receive the graphical representations from the graphical user interface, the display device operative to display the graphical representations of the failed scan chains.

29. (Cancelled and Previously Added) A DFT result diagnosis system including:

a data source for providing test data in one or more domains;

5 a function module for accumulating the test data and automatically summarizing the data.

30. (Cancelled and Previously Added) A DFT result diagnosis system according to claim 29 wherein:

5 the data source provides test data in one or more domains from the group comprising ATE failure data, ATPG/scan failure data, logical design failure data and physical design failure data.

31. (Cancelled and Previously Added) A DFT result diagnosis system according to claim 29 wherein:

the function module accumulates test data from multiple tests.

32. (Previously Added) A DFT result diagnosis system including:

a test and diagnosis engine including a semiconductor tester and a scan diagnosis tool;

5 a graphical user interface generator for receiving failure scan chain data identifying failed scan chains from the test and diagnosis engine and generating graphical representations of the failed scan chains; and

a display device coupled to receive the graphical representations from the graphical user interface, the display device operative to display the graphical representations of the failed scan chains.

33. (Previously Added) A DFT result diagnosis system according to claim 32 and further including:

at least one translation module to automatically convert data between multiple domains; and

5 at least one function module to automatically summarize data for one or more devices or tests in one or more domains.

34. (Previously Added) A DFT result diagnosis system according to claim 33 wherein the at least one translation module includes:

a pattern translator to convert ATPG pattern data into ATE pattern data;

5 a result translator to convert ATE output data into ATPG/diagnosis tool input data; and

a mapping generator for correlating the pattern data and the failure data between the ATPG/scan and the ATE domains.

35. (Previously Amended and Previously Added) A DFT result diagnosis system including:

means for generating pattern signals in an ATE domain to test a device-under-test and producing test output data in the ATE domain;

5 means for generating ATPG pattern data and ATPG results data in an ATPG domain;

means for automatically converting data between multiple domains;

means for automatically accumulating data for one or more devices or tests in one or more domains; and

10 means for graphically displaying the failed scan chain data.

36. (Cancelled and Previously Added) A DFT result diagnosis system according to claim 35 wherein the test output data includes failed scan chain data, the DFT result diagnosis system further including:

means for graphically displaying the failed scan chain data.

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37. (Previously Amended and Previously Added) A computer-readable medium having stored thereon sequences of instructions which, when executed, cause one or more electronic systems to:



5 capture scan failure data associated with failed scan chains from a data source;  
graphically display a portion of the scan chains including the captured failure data; and  
diagnose the scan failure data with a diagnosis tool.

38. (Previously Amended and Previously Added) A method comprising:  
capturing scan failure data associated with failed scan chains from a data source;  
5 graphically displaying a portion of the scan chains including the captured failure data; and  
diagnosing the scan failure data with a diagnosis tool to produce diagnosis results data.

39. (Currently Amended and Previously Added) A method according to claim 38 wherein the capturing step includes:  
testing a device-under-test with test pattern data in a scan format, and  
the data source ~~comprises~~ comprising the device-under-test.

5 40. (Previously Added) A method according to claim 39 wherein the step of testing includes the step:  
directly communicating with the diagnosis tool.

41. (Previously Added) A method according to claim 39 wherein the step of testing includes the step:  
directly communicating with the data source.

42. (Previously Added) A method according to claim 39 wherein the step of testing includes the step:  
generating ATPG pattern data in the ATPG domain with the diagnosis tool; and  
5 automatically translating the ATPG pattern data into ATE test pattern data.

43. (Previously Added) A method according to claim 39 wherein the step of capturing includes the step:

accumulating multiple sets of scan failure data.

44. (Previously Added) A method according to claim 39 wherein the step of displaying includes:

displaying textual/tabular scan fail data.

45. (Cancelled and Previously Added) A method according to claim 39 wherein the step of displaying includes:

displaying graphical scan fail data.

46. (Cancelled and Previously Added) A method according to claim 39 and further including the step:

displaying the diagnosis results data.

47. (Cancelled and Previously Added) A method according to claim 46 wherein the step of displaying includes:

displaying textual/tabular diagnosis results data.

48. (Cancelled and Previously Added) A method according to claim 43 wherein the step of diagnosing includes the step:

automatically invoking the diagnosis tool on selected scan failure data sets.

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49. (Cancelled and Previously Added) A method according to claim 43 wherein the step of diagnosing includes the step:

generating ATPG pattern data in the ATPG domain with the diagnosis tool; and

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automatically translating the ATE output test data into ATPG/scan failure data.

50. (Cancelled and Previously Added) A method according to claim 43 wherein the step of diagnosing includes the step:  
accumulating multiple sets of diagnosis results data.

51. (Cancelled and Previously Added) A computer-readable medium having stored thereon sequences of instructions which, when executed, cause one or more electronic systems to:

5 access ATE domain data;  
access ATPG domain data;  
automatically translate the accessed data between multiple domains;  
and  
automatically summarize the translated data for one or more devices or tests in one or more domains.

52. (Cancelled and Previously Added) A method comprising:  
accessing ATE domain data;  
accessing ATPG domain data;  
5 automatically translating the accessed data between multiple domains;  
and  
automatically summarizing the translated data for one or more devices or tests in one or more domains.

53. (Cancelled and Previously Added) A method according to claim 52 wherein the automatically summarizing step includes one or more steps from the group including filtering, sorting, querying, or accumulating test data for one or more devices or tests in one or more domains.

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54. (Cancelled and Previously Added) A method comprising the steps:  
accessing test data from one or more domains from the group  
comprising ATE failure data, ATPG/scan failure data, logical design failure data and  
5 physical design failure data; and  
automatically summarizing test data from one or more devices or tests in one or more domains.